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PATENT APPLICATION

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UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): SAID ZAMANI-KORD

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Examiner: DICUS, TAMRA

Application No.: 09/443,401

Group Art Unit: 1774

Filing Date: Nov 19, 1999

Title: TECHNIQUES TO PREVENT LEAKAGE OF FLUORESCING SIGNALS THROUGH PRINT MEDIA OR INDICIA TAPE

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on Sep 24, 2004.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

(X) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

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A check in the amount of $450.00 is enclosed in payment of the two month extension fee required by 37 CFR 1.17(a)-(d).

Please charge to Deposit Account **08-2025** the sum of **$500.00**. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

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Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Said Zamani-Kord et al.

Serial No. 09/443,401

Filed: 11/19/1999

For: TECHNIQUES TO PREVENT LEAKAGE OF FLUORESCING SIGNALS THROUGH PRINT MEDIA OR INDICIA TAPE

Art Unit: 1774

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APPEAL BRIEF

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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA

Sir:

This appeal is taken from the Office's rejection of Claims 2, 4, 6-18, 20-28, 32 and 35-37 mailed June 21, 2004, in the subject application (the "Final Rejection").

I. REAL PARTY IN INTEREST.

The real party in interest is the assignee, Hewlett-Packard Development Company, L.P.

II. RELATED APPEALS AND INTERFERENCES.

There are no related appeals, interferences or judicial proceedings known to appellants, the appellants' legal representative, or assignee.

III. STATUS OF ALL THE CLAIMS.

Claims 1-31 were filed with this application. During the course of prosecution before the Primary Examiner, Claims 32-36 were added, Claims 1, 3, 5, 19, and 33-34 were canceled. Claims 29-31 were withdrawn from

consideration. Claims 2, 4, 6-18, 32 and 35-37 in their present form appear in Appendix 1.

Claims 2, 4, 6-18, 32 and 35-37 are at issue in this appeal.

IV. STATUS OF ALL AMENDMENTS FILED SUBSEQUENT TO REJECTION.

No amendments have been filed subsequent to the rejection mailed June 21, 2004, which is the subject of this appeal.

V. SUMMARY OF THE INVENTION.

The exemplary page and line numbers referred to herein are to the specification; reference characters are found in the drawing.

Claim 12 is drawn to a machine-readable indicia-bearing substrate structure, comprising:

a substrate **[52, FIG. 3; 72; FIG. 4; 84; 84A, 84B, FIG. 5]** having a first surface and a second surface;

a first information bearing indicia **[58, FIG. 3; 76, FIG. 4; 86, FIG. 5]** defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia **[60, FIG. 3; 78, FIG. 4; 88, FIG. 5]** defined by a fluorescent material positioned adjacent to the second surface; and

means **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness

to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy;

further comprising a sheet of a print medium **[10, FIGS. 1-2]**, and said substrate structure is adhered to a surface of the sheet of the print medium.

Claim 13 is drawn to a machine-readable indicia-bearing substrate structure, comprising:

a substrate **[10; FIGS. 1-2]** having a first surface and a second surface;

a first information bearing indicia **[12A; FIG. 2]** defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia **[12B; FIG. 2]** defined by a fluorescent material positioned adjacent to the second surface; and

means **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure **[54, 56, FIG. 3; 74, FIG. 4;82; FIG. 5]** positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy **[5:28 to 7:22]**;

wherein the substrate is a print medium**[8:18-24]**, and the indicia are applied to a portion of the print medium which does not receive printed components of an image during a printing process.

Claim 14 is drawn to a machine-readable indicia-bearing substrate structure, comprising:

a substrate **[52, FIG. 3; 72; FIG. 4; 84; 84A, 84B, FIG. 5]** having a first surface and a second surface;

a first information bearing indicia **[58, FIG. 3; 76, FIG. 4; 86, FIG. 5]** defined by a fluorescent material positioned adjacent to the first surface;,

a second information bearing indicia **[60, FIG. 3; 78, FIG. 4; 88, FIG. 5]** defined by a fluorescent material positioned adjacent to the second surface; and

means **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy **[5:28 to 7:22]**;

further comprising a layer of a print medium **[9:18 to 10:30; 308, FIGS. 10-11]** in roll form, and said substrate structure is attached to a surface of the layer of the print medium.

Claim 15 is drawn to a print medium encoded with information bearing indicia, comprising:

a layer of a print medium **[10, FIGS. 1-2; 308, FIGS. 10-11]**;

an indicia-bearing tape structure **[50, FIG. 3; 70, FIG. 4; 80, FIG. 5]** adhered to said layer of the print medium, said tape structure comprising:

a tape substrate **[52, FIG. 3; 72; FIG. 4; 84; 84A, 84B, FIG. 5]** having a first surface and a second surface;

a first information bearing indicia **[58, FIG. 3; 76, FIG. 4; 86, FIG. 5]** defined by a fluorescent material positioned adjacent the first surface;

a second information bearing indicia **[60, FIG. 3; 78, FIG. 4; 88, FIG. 5]** defined by a fluorescent material positioned adjacent the second surface; and

a reflective barrier structure **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process in which the substrate is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective barrier structure of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy **[5:28 to 7:22]**.

Claim 35 is drawn to a machine-readable indicia-bearing substrate structure, comprising:

a planar sheet of a print medium;

a planar substrate structure **[50, FIG. 3; 70, FIG. 4; 80, FIG. 5]** having a first surface and a second surface which are disposed in an essentially parallel relationship said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia **[58, FIG. 3; 76, FIG. 4; 86, FIG. 5]** formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia **[60, FIG. 3; 78, FIG. 4; 88, FIG. 5]** formed by a fluorescent material positioned adjacent to the second surface; and

a thin metal layer **[82, FIG. 5]** positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said thin metal layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process **[5:28 to 7:22]**.

Claim 36 is drawn to a machine-readable indicia-bearing substrate structure, comprising:

a planar sheet **[10, FIGS. 1-2]** of a print medium;

a planar substrate structure **[50, FIG. 3; 70, FIG. 4; 80, FIG. 5]** having a first surface and a second surface which are disposed in an essentially parallel relationship, said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia **[58, FIG. 3; 76, FIG. 4; 86, FIG. 5]** formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia **[60, FIG. 3; 78, FIG. 4; 88, FIG. 5]** formed by a fluorescent material positioned adjacent to the second surface; and

a reflective layer **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process **[5:28 to 7:22]**.

Claim 37 is drawn to a machine-readable indicia-bearing substrate structure, comprising:

a planar print medium **[10, FIGS. 1-2; 308, FIGS. 10-11]** having a first surface and a second surface which are disposed in an essentially parallel relationship;

a first information bearing indicia **[58, FIG. 3; 76, FIG. 4; 86, FIG. 5]** formed by a fluorescent material positioned adjacent to the first surface at a first portion of the print medium which does not receive printed components of an image during a printing process **[8:18-24]**;

a second information bearing indicia **[60, FIG. 3; 78, FIG. 4; 88, FIG. 5]** formed by a fluorescent material positioned adjacent to the second surface at a second portion of the print medium which does not receive printed components of an image during a printing process **[8:18-24]**; and

a reflective layer **[54, 56, FIG. 3; 74, FIG. 4; 82, FIG. 5]** positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby preventing interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process **[5:28 to 7:22]**.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.

The grounds of rejection to be reviewed on appeal are:

whether Claims 2, 4, 6-18, 20-28, 32 and 35-37 are unpatentable under 35 USC 103(a) over U.S. 6,471,247, Hardwick et al. ("Hardwick") in view of U.S. 6,089,614, Howland et al. ("Howland") and U.S. 5,492,370, Chatwin et al. ("Chatwin").

VII. ARGUMENT.

For purposes of this appeal, appellants are content to stand on the differences between the claimed invention and the applied references discussed below, because these differences are sufficient to establish that a prima facie case of anticipation and obviousness has not been established, and the applied references do not describe, teach or suggest appellants' invention. Appellants do not concede, however, that other differences do not exist.

A. The Requirements of 35 USC §103.

35 USC §103 requires that the invention as a whole must be considered in obviousness determinations. The invention as a whole embraces the structure, its properties and the problem it solves. In re Wright, 6 USPQ2d 1959, 1961 (Fed.Cir. 1988).

In order to provide a basis for obviousness, the applied references must be related to the subject matter of the invention in issue and must suggest (expressly or by implication) the combination of the invention in issue. In re Sernaker, 702 F.2d 989 (Fed.Cir. 1983).

Further, the combined teachings of the prior art references should suggest the advantage of combining the teachings. In re Sernaker, supra, at 995-996.

In determining the combined teachings of the applied references, the subject matter of the claimed invention must not be utilized to provide hindsight reconstruction of the applied references. As stated by the Court of Customs and Patent Appeals In re Shuman, 361 F.2d 1008 (CCPA 1966):

> It is impermissible to first ascertain factually what appellant did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct appellants' invention from such prior art. 361 F.2d at 1012.

The Examiner bears the burden of establishing a prima facie case of obviousness based on the prior art. "... 'This burden can be satisfied only by showing some objective teaching in the prior art or that knowledge generally

available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.' The patent applicant may then attack the Examiner's prima facie determination as improperly made out, or the applicant may present objective evidence tending to support a conclusion of nonobviousness." In re Fritch, 23 USPQ 1780, 1783 (Fed.Cir. 1992).

Appellants submit that the Primary Examiner has not established prima facie that the claimed invention would have been obvious in view of the applied references, and that the references do not teach or suggest the claimed invention.

B. A Prima Facie Case of Obviousness Has Not Been Established.

1. The independent claims are not obvious in view of the applied references.

Each of independent Claims 12-15 and 35-37 includes in combination a print medium. These claims further recite:

> means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy (Claim 12)

> means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination

energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy (Claim 13)

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy (Claim 14)

a reflective barrier structure for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process in which the substrate is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective barrier structure of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy (Claim 15)

a thin metal layer positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia wherein the substrate

structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said thin metal layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process (Claim 35)

a reflective layer positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process (Claim 36)

a reflective layer positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby preventing interference between the first fluorescing signal and

the second fluorescing signal and degradation of said detection process (Claim 37)

The applied references do not teach or suggest a print medium in combination with the above quoted claim limitations.

Appellants respectfully disagree with the recitation of the teachings of the references set out in the Final Rejection.

Hardwick is directed to banknote security devices, wherein inks are applied above and below a substrate. As the Examiner recognizes, Hardwick does not teach a print medium, or tape having first and second surfaces, or roll, and does not describe placing a reflective layer between the two ink indicia. Final Rejection at 3:15-17.

Howland is cited as allegedly showing a security device with first (7) and second (8) indicia with a metallized substrate in the middle (1). The substrate can allegedly be "coated with a very thin film of aluminum (equivalent to thin metal foil layer of claim 2), metal oxide or other reflective layer (reflective barrier functional equivalent of instant claims 15-22) at col. 3, lines 23-33." Final Rejection at page 2, section 2, lines 11-13.

There is no teaching or suggestion in Howland that the security device include a means for preventing interference, or layer, or barrier structure, as recited in Claims 12-15 and 35-37. For this reason alone, a prima facie case of obviousness has not been established.

The Examiner further alleges that it would have been obvious to modify the banknote of Hardwick to include a metallized foil, or reflective layer as the substrate since Howland teaches metallizing a substrate to exhibit such properties as high reflectivity and also enable the second indicia to be viewed in transmitted light. Appellants respectfully disagree. There is no showing of any advantage to be achieved by adding the very thin metal layer of Howland to Hardwick. In fact, modifying Hardwick in the manner suggested by the Examiner would make the bank note of Hardwick unsuitable for its purpose, and change the principle of operation of Hardwick. MPEP 2143.01

The Examiner refers to the embodiment of FIG. 6 of Hardwick in the Final Rejection (section 2, page 2, line 6). This embodiment utilizes a clear plastic substrate 10, with a front to back registration device comprising a first pattern 40 on the lower surface 11 of the substrate and a second pattern 50

applied on the upper surface 12 of the substrate. When the security document 1 is viewed in transmission from position A, the combination of the two sets of lines 41, 51 of the patterns 40, 50 produce a Moire pattern due to interference effects, which is said to be very difficult to counterfeit. Hardwick at 6:12-32. The Examiner contends that it would have been obvious to modify the banknote of Hardwick to include a metallized foil, or reflective layer as the substrate, since Howland teaches metallizing a substrate to exhibit such properties as high reflectivity and also enable the second substrate to be viewed in transmitted light. However, to utilize a metallized foil in place of the clear plastic substrate 10, and attempt to meet the claim limitations of a reflective barrier or layer "of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference," would result in the registration device failing to perform in the manner intended by Hardwick, i.e. to produce a Moire pattern due to interference effects.

The mere fact that references can be modified or combined does not render the resultant combination obvious, unless the prior art also suggests the desirability of the combination. MPEP 2143.01. Here, the Examiner has failed to meet the burden of establishing a motivation to modify Hardwick, since the proposed modification modifies the principle of operation of Hardwick and renders it unsuitable for its purpose in producing a Moire pattern.

Moreover, even if the combination is made as urged by the Examiner, the claimed invention still does not result since the modified Hardwick device would not include a "means for preventing interference," or barrier or layer structure, as set out in the rejected claims. The cited passage of Howland does not describe a barrier or layer structure as recited in these claims, but a coating that is sufficiently transparent to enable the second indicia to be viewed in transmitted light. (Howland at 3:31-33)

The Final Rejection at 3:7-15 discusses product-by-process claims, asserts that the rejected claims are product-by-process claims, and that "a substrate structure is illuminated by illumination energy of a predetermined wavelength or range that causes fluorescence is a product by process limitation. The Final Rejection then apparently indicates that limitations in the claim can be ignored for purposes of the obviousness analysis under Section 103 because patentability of an article depends on the article itself and not the method used

to produce it. Appellants respectfully submit that the claims are not product-by-process claims, and that all claim limitations must be considered, and that a prima facie case of obviousness has not been established because all claim limitations have concededly not been considered.

A product-by-process claim is a product claim that defines the claimed product in terms of the process by which it is made. MPEP 2173.05(p). None of the claims at issue in this appeal are product claims which are defined in terms of the process by which it is made. The limitation, e.g. in Claim 13, regarding illumination of the substrate structure by illumination energy of a predetermined wavelength or wavelength range, further defines the "means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia." The limitation does not define how the article is made.

As noted above, the Examiner concedes that Hardwick does not teach "a print medium, tape having first and second surface (tape layer), or roll of claims 12-18, 20-28 and 35-37." Final Rejection at 3:15-18. Chatwin is cited as allegedly showing "several print medias such as a glass or tax certificate adhered to the substrate via a self adhesive film/layer (tape) at col. 11, lines 50-65 and col. 12, lines 1-25." Final Rejection at 3:17-19. From this, the Examiner asserts that it would have been obvious "to modify the banknote of Hardwick to further include a print medium and tape layer for the purpose of producing vehicle tax certificates as taught by Chatwin at col. 11, lines 50-65 and col. 12, lines 1-25." Final Rejection at 3:19-22. Appellants respectfully disagree with this remarkable holding.

The final product of the proposed combination of a modified Harkwick is to be a bank note adhered to a vehicle tax certificate. This transmogrification of Hardwick is the product of prohibited hindsight reconstruction, using appellants' specification and claims as a blueprint in seeking to construct an obviousness rejection.

Measuring a claimed invention against the standard established by 35 USC 103 requires the critical step of casting the mind back to the time of invention, to consider only the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the art. The case law of the Federal Circuit makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is

rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. Evidence of a suggestion, teaching or motivation may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or in some cases, from the nature of the problem to be solved. The range of sources available, however, does not diminish the requirement for actual evidence. The showing of such actual evidence must be clear and particular. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. The required showing of evidence should include particular factual findings. In re Dembiczak, 50 USPQ 2d 1614, 1617 (Fed.Cir. 1999).

Here, the rejection is the product of prohibited hindsight reconstruction, using appellants' specification as a blueprint to seek an assortment of elements in different references. Because a prima facie case of obviousness has not been established, and the applied references do not teach or suggest the claimed invention, the rejection under Section 103 should be reversed.

2. The print medium of Claims 15-28 is patentably distinguished from the references.

Claim 15 is drawn to a print medium encoded with information bearing indicia, comprising:

a layer of a print medium;

an indicia-bearing tape structure adhered to said layer of the print medium, said tape structure comprising:

a tape substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent the second surface; and

a reflective barrier structure for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process in which the substrate is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective barrier structure of sufficient opacity and

reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy.

The Final Rejection at page 4, lines 10-18, addresses Claim 15, as well as Claims 12-14 and 35-37. The Examiner asserts that Chatwin teaches an opaque coating of aluminum which allegedly provides partial transparency and not full transparency, thus providing opaque functionality as required by instant claims 12-15 and 35-37. This does not address the specific claim limitation, e.g. of Claim 15, i.e. "said reflective barrier structure of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy." If Hardwick is modified to include a reflective barrier structure meeting this claim limitation, its principle of operation is changed, as described above in section 1. There is therefore no motivation to modify Hardwick in the manner asserted by the Examiner.

The Examiner further alleges at page 5, lines 1-6, of the Final Rejection, that "tape is a polymeric substrate and hence it is obvious to include a reflective material disposed on either side since the references teach metallizing, or providing metal oxide or reflective coatings to a plastic film is known to provide optical variable effects as taught by Chatwin at col. 5, lines 34-40, col. 6, lines 28-33." Appellants do not agree with this recitation of the teachings of Chatwin. Further, the discussion at 5:1-6 of the Final Rejection is not specifically directed to claim limitations, and so it is unclear how the discussion supports the rejection.

3. Dependent Claims 10 and 24 are patentable over the references.

Claims 10 and 24 further define the subject matter of Claims 13 and 15, respectively, in that the fluorescent material is recited as "a material which fluoresces energy at a wavelength within the spectral region between 200 and 1100 nanometers upon excitation by excitation radiation." The Examiner alleges that the property of the fluorescent material of claim 10 is inherent as the "same materials are used in Hardwick." Appellants respectfully disagree.

Hardwick states at 4:33-36 that the inks used to print the security feature 20 could be colored, fluorescent, phosphorescent, pearlescent or otherwise contain optically variable pigments or additives. There is no discussion as to the wavelength range at which the fluorescent ink fluoresces energy. Thus, Hardwick does not disclose the same material, and the subject matter of these dependent claims is further distinguished from Hardwick.

4. Dependent Claims 6-8 are patentable over the references.

The Final Rejection does not specifically discuss the features added by dependent Claims 6-8, and for this reason alone a prima facie case of obviousness has not been established.

The applied references do not teach or suggest a substrate structure as recited in these dependent claims, which further define the reflective layer structure of Claim 13:

> a first layer of a reflective material disposed on the first surface of the substrate, the first indicia disposed on an outer surface of the first layer; and
>
> a second layer of a reflective material disposed on the second surface of the substrate, the second indicia disposed on an outer surface of the second layer **[claim 6]**

> reflective radiation blocking materials dispersed within said substrate **[claim 7]**

> the substrate comprises first and second thin layers of a substrate material, and reflective layer structure includes a reflective layer sandwiched between the first thin layer and the second thin layer **[claim 8]**

The rejection of Claims 6-8 should be reversed.

5. The "Response to Arguments" Section of the Final Rejection.

In the "Response to Arguments" section of the Final Rejection, e.g. at page 5, the Examiner alleges that "the arguments of counsel cannot take the place of evidence in the record," and that "applicant has not proven that the layers of indicia and metal as described in Howland do not reflect or prevent interference as Applicant desires." Appellants contend that this misstates the allocation of the burden of establishing prima facie obviousness and the obviousness determination. The examiner bears the burden of factually supporting any prima facie conclusion of obviousness. MPEP 2142. As demonstrated above, the examiner has not met this burden. Moreover, the ultimate conclusion of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments. In re Oetiker, 24 USPQ 2d 1443 (Fed. Cir. 1992).

In the "Response to Arguments" section of the Final Rejection, the Examiner asserts that Howland teaches a security device with first (7) and second (8) indicia with a metallized substrate in the middle (1), and that the structure has a means for preventing interference is inherent as the same layered structure and materials are provided by Howland. However, it is not the substrate that is metallic or metallized, but rather the obscuring material 10 (e.g. FIG. 1). Moreover, Howland teaches that a high level of transparency is advantageous since it allows the use of relatively low intensity indicia (Howland at 2:67 et seq.). Thus, as pointed out above, Howland does not teach a reflective structure as recited in the claims at issue here.

At page 7 of the Final Rejection, the Examiner asserts that appellant has not "fully disclosed what kind of 'interference' he is claiming, i.e. ink interference, light interference, energy interference, etc." Appellants respectfully disagree; the claim language is clear and quite specific. See, e.g. Claim 12 ("means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said

reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy").

At page 8, the Examiner refers to the alleged motivation to modify Hartwick with Howland, which appellant has addressed above, but also refers to Chatwin as showing a metallized or reflective layer. The same reasoning as to why Hartwick would not be modified to include a reflective layer structure as discussed above regarding Howland also applies to Chatwin. Such modification would change the manner of operation of Hartwick, and thus is not supported by a motivation or advantage to modify Hartwick.

VIII. SUMMARY

The rejection under 35 USC § 103 must be reversed. A prima facie case of obviousness has not been made, and the cited references do not teach or suggest the claimed invention.

Respectfully submitted,

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APPENDIX I

1. (Cancelled)

2. (Previously Presented) The substrate structure of Claim 13 wherein the reflective layer structure includes a thin metal foil layer positioned between the first indicia and the second indicia.

3. (Canceled)

4. (Previously Presented) The substrate structure of Claim 13 wherein the reflective layer comprises one or more of the following materials:

Titanium (IV) Oxide (TiO2), Zinc Oxide (ZnO), Zirconium (IV) Oxide (ZrO2), aluminum oxide (AlO3), aluminum oxide hydroxide (AlO(OH)), aluminum trihydroxide (Al(OH)3).

5. (Canceled)

6. (Previously Presented) The substrate structure of Claim 13 wherein the reflective layer structure includes:

a first layer of a reflective material disposed on the first surface of the substrate, the first indicia disposed on an outer surface of the first layer; and

a second layer of a reflective material disposed on the second surface of the substrate, the second indicia disposed on an outer surface of the second layer.

7. (Previously Presented) The substrate structure of Claim 13 wherein the reflective layer structure includes reflective radiation blocking materials dispersed within said substrate.

8. (Previously Presented) The substrate structure of Claim 13 wherein the substrate comprises first and second thin layers of a substrate material, and reflective layer structure includes a reflective layer sandwiched between the first thin layer and the second thin layer.

9. (Previously Presented) The substrate structure of Claim 13 wherein the substrate is selected from the group consisting of:

paper, polyester, polyethylene and polystyrene.

10. (Previously Presented) The substrate structure of Claim 13 wherein said fluorescent material is a material which fluoresces energy at a wavelength within the spectral region between 200 and 1100 nanometers upon excitation by excitation radiation.

11. (Previously Presented) The substrate structure of Claim 13 wherein the first indicia and the second indicia are arranged in an overlapping relationship.

12. (Previously Presented) A machine-readable indicia-bearing substrate structure, comprising:

a substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface; and

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy;

further comprising a sheet of a print medium, and said substrate structure is adhered to a surface of the sheet of the print medium.

13. (Previously Presented) A machine-readable indicia-bearing substrate structure, comprising:

a substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface; and

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy;

wherein the substrate is a print medium, and the indicia are applied to a portion of the print medium which does not receive printed components of an image during a printing process.

14. (Previously Presented) A machine-readable indicia-bearing substrate structure, comprising:

a substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent to the second surface; and

means for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, in which detection process the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said means including a reflective layer structure positioned between the first indicia and the second indicia, said reflective layer structure having sufficient thickness and opaqueness

to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy;

further comprising a layer of a print medium in roll form, and said substrate structure is attached to a surface of the layer of the print medium.

15. (Previously Presented) A print medium encoded with information bearing indicia, comprising:

a layer of a print medium;

an indicia-bearing tape structure adhered to said layer of the print medium, said tape structure comprising:

a tape substrate having a first surface and a second surface;

a first information bearing indicia defined by a fluorescent material positioned adjacent the first surface;

a second information bearing indicia defined by a fluorescent material positioned adjacent the second surface; and

a reflective barrier structure for preventing interference between a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process in which the substrate is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective barrier structure of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy.

16. (Previously Presented) The print medium of Claim 15 wherein the reflective barrier structure includes a thin metal foil layer positioned between the first indicia and the second indicia.

17. (Previously Presented) The print medium of Claim 15 wherein the reflective barrier structure includes a reflective layer positioned between the first and second indicia.

18. (Previously Presented) The print medium of Claim 15 wherein the reflective barrier structure comprises one or more of the following materials:

Titanium (IV) Oxide (TiO2), Zinc Oxide (ZnO), Zirconium (IV) Oxide (ZrO2), aluminum oxide (AlO3), aluminum oxide hydroxide (AlO(OH)), aluminum trihydroxide (Al(OH)3).

19. (Cancelled)

20. (Previously Presented) The print medium of Claim 15 wherein the reflective barrier structure includes:

a first layer of a reflective disposed on the first surface of the tape substrate, the first indicia disposed on an outer surface of the first layer; and

a second layer of a reflective disposed on the second surface of the tape substrate, the second indicia disposed on an outer surface of the second layer.

21. (Previously Presented) The print medium of Claim 15 wherein the reflective barrier structure includes reflective radiation blocking materials dispersed within the tape substrate.

22. (Previously Presented) The print medium of Claim 15 wherein the tape substrate comprises first and second thin layers of a tape material, and the reflective barrier structure includes a reflective layer sandwiched between the first thin layer and the second thin layer.

23. (Original) The print medium of Claim 15 wherein the tape substrate is fabricated from a material selected from the group consisting of:

paper, polyester, polyethylene and polystyrene.

24. (Original) The print medium of Claim 15 wherein said fluorescent material is a material which fluoresces energy at a wavelength within the spectral region between 200 and 1100 nanometers upon excitation by excitation radiation.

25. (Original) The print medium of Claim 15 wherein the first indicia and the second indicia are arranged in an overlapping relationship.

26. (Original) The print medium of Claim 15 wherein the layer of the print medium is a layer of a transparent or clear print material.

27. (Original) The print medium of Claim 15 wherein the layer of the print medium is in sheet form.

28. (Original) The print medium of Claim 15 wherein the layer of the print medium is in roll form.

29. (Original - withdrawn from consideration)

30. (Original - withdrawn from consideration)

31. (Original - withdrawn from consideration)

32. (Previously Presented) The substrate structure of Claim 13, wherein said substrate is a planar substrate, and said first surface is parallel to said second surface.

33. (Cancelled)

34. (Canceled)

35. (Previously Presented) A machine-readable indicia-bearing substrate structure, comprising:

a planar sheet of a print medium;

a planar substrate structure having a first surface and a second surface which are disposed in an essentially parallel relationship said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface; and

a thin metal layer positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by

the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said thin metal layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process.

36. (Previously Presented) A machine-readable indicia-bearing substrate structure, comprising:

a planar sheet of a print medium;

a planar substrate structure having a first surface and a second surface which are disposed in an essentially parallel relationship, said substrate structure adhered to a surface of said planar sheet;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface; and

a reflective layer positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby prevent interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process.

37. (Previously Presented) A machine-readable indicia-bearing substrate structure, comprising:

a planar print medium having a first surface and a second surface which are disposed in an essentially parallel relationship;

a first information bearing indicia formed by a fluorescent material positioned adjacent to the first surface at a first portion of the print medium which does not receive printed components of an image during a printing process;

a second information bearing indicia formed by a fluorescent material positioned adjacent to the second surface at a second portion of the print medium which does not receive printed components of an image during a printing process; and

a reflective layer positioned between the first indicia and the second indicia for blocking passage therethrough of a first fluorescing signal emitted by the first indicia and a second fluorescing signal emitted by the second indicia during a detection process for reading information from said first indicia or said second indicia, wherein the substrate structure is illuminated by illumination energy of a predetermined wavelength or wavelength range which causes said fluorescent material to fluoresce, said reflective layer of sufficient opacity and reflectiveness to prevent passage therethrough of said first fluorescing signal and said second fluorescing signal and to reflect said illumination energy and thereby preventing interference between the first fluorescing signal and the second fluorescing signal and degradation of said detection process.